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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,309	10/15/2003	Lisa K. Jennings	20609/261 (PD 02027)	7255

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EXAMINER	
WALLENHORST, MAUREEN	
ART UNIT	**PAPER NUMBER**
1743	

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/686,309	JENNINGS ET AL.	
	Examiner	Art Unit	
	Maureen M. Wallenhorst	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-29 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 3/15/04, 5/17/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Claims 6 and 23-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 6, the abbreviation "LTA" is indefinite since it is not clear what this stands for.

Claim 23 is indefinite and incomplete since the preamble of the claim recites a method for detecting the presence of platelet microaggregates in a blood sample. However, none of the steps of the method relate back to the detection of platelet microaggregates. The last step of the method merely detects incomplete inhibition of platelet aggregation, not the presence of platelet microaggregates. On line 9 of claim 23, the abbreviation MPV is indefinite since it is not clear what this stands for. In addition, this value has not been defined in the specification, and therefore, it is not being given patentable weight.

In claim 25, the abbreviation ICHOR is indefinite since it is not clear what this stands for.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3-5, 7-11, 14-17, 20-23 and 26-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Brady et al (US Patent no. 6,410,337, submitted in the Information Disclosure Statement filed on May 17, 2004).

Brady et al teach of a method for analyzing platelet aggregation in blood samples. In the method, blood from an individual is collected into two tubes, both containing the anticoagulant EDTA or sodium citrate. The first tube serves as a measurement of a baseline for platelet aggregation. A platelet aggregation agonist such as ADP is added to the second tube, and the contents of the second tube are mixed end-to-end (i.e. by inversion) to allow the agonist to induce the activity of platelets and initiate their aggregation. The blood samples are then analyzed on an automated hematology analyzer such as a CBC instrument that counts cells by electrical impedance. The first sample represents a baseline count of platelet aggregates, and the second sample represents platelet aggregation in the presence of a platelet agonist. Since Brady et al does not explicitly indicate any time lapse between the addition and mixing of the platelet agonist with the second blood sample and the analysis of the second blood sample on the hematology analyzer, it is inherent that the analysis occurs substantially immediately after the addition and mixing of the agonist with the second blood sample. Brady et al also teach of using the method to monitor the efficacy of an antiplatelet therapy such as GpIIB-IIIa antagonist therapy, and modifying the therapy based upon the results of the test. See lines 23-67 in column

5, column 6 and column 7 in Brady et al. It is noted that the recitation of MPV in instant claim 23 is not defined in the specification, and therefore, it is not given patentable weight. It is inherent in the method taught by Brady et al that platelet microaggregates are also detected in addition to platelet aggregates since microaggregates are simply smaller clumps of platelets (i.e. on the order of 2-3 platelets) that form as a precursor to the larger platelet aggregates. It is also inherent in the method taught by Brady et al that a value for platelet aggregation in the agonist treated sample is compared to a value of platelet aggregation in the baseline sample in order to determine the presence of or lack of inhibition of platelet aggregation by a therapeutic platelet antagonist.

5. Claims 1, 3 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Perkes (US 2002/0048575, submitted in the IDS filed on May 17, 2004).

Perkes teaches of a platelet aggregation test that comprises the steps of collecting a blood sample from an individual, mixing the blood sample with an anticoagulant such as sodium citrate, adding a platelet aggregation agonist such as collagen to the sample, and immediately measuring the blood sample for platelet aggregation in an automated aggregometer to obtain a maximum platelet aggregation response. Platelet aggregation is measured in the aggregometer by measuring an impedance change in the sample over time. See paragraph no. 0098 in Perkes.

6. Claims 1, 3-4 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Gear (US Patent no. 4,090,129, submitted in the IDS filed on May 17, 2004).

Gear teaches of a method for measuring platelet aggregation in a blood sample that comprises the steps of collecting a blood sample from an individual, adding an anticoagulant such as acid-citrate-dextrose to the sample, isolating platelet rich plasma from the anticoagulated

sample, combining the platelet rich plasma with a platelet aggregation agonist such as ADP at a high flow and shear rate to ensure mixing of the platelet rich plasma and agonist, and immediately analyzing the sample using a resistive hematology counter. See lines 41-65 in column 7, lines 25-68 in column 9 and lines 1-38 in column 10 of Gear.

7. Claims 1, 4 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Aursnes et al (article submitted in the IDS filed on May 17, 2004).

Aursnes et al teach of a method for measuring the aggregation of platelets that comprises the steps of collecting a sample of human blood, combining the sample with a soybean trypsin inhibitor as anticoagulant, adding a platelet agonist such as ADP to the sample, stirring the sample to mix the ADP with the platelets therein, and immediately analyzing the sample on an automated aggregometer. See the abstract and pages 30-31 in Aursnes et al.

8. Claims 10-14 and 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Simon et al (article submitted in the IDS filed on March 15, 2004).

Simon et al teach of a method for measuring the efficacy of antiplatelet therapy with GpIIb-IIIa antagonists such as abciximab and tirofiban. The method comprises the steps of first collecting a baseline blood sample from an individual before any antiplatelet therapy is administered. The blood sample is combined with the anticoagulant PPACK since Simon et al disclose that this anticoagulant avoids the divalent cation-chelating effect of anticoagulants such as citrate and EDTA, which has been shown to contribute to the overestimation of platelet inhibition. The platelet aggregation agonist ADP is then added to the baseline sample, and immediately thereafter, platelet aggregation is measured in the baseline sample using light transmission aggregometry. Test blood samples are then measured in the same way after

infusions of different therapeutic platelet antagonists such as abciximab and tirofiban into an individual. The test blood samples exposed to abciximab and tirofiban are also combined with PPACK and ADP, and then measured on a light transmission aggregometer. The test sample results are compared to the baseline sample. See the abstract and pages 426-427 in Simon et al.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 2 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brady et al in view of Simon et al. For a teaching of Brady et al and Simon et al, see previous paragraphs in this Office action.

Brady et al fail to teach that the blood samples analyzed for platelet aggregation can be combined with the anticoagulant D-Phe-Pro-Arg-chloromethyl ketone dihydrochloride (PPACK). However, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to use PPACK as the anticoagulant combined with the blood samples analyzed for platelet aggregation in the method taught by Brady et al since Simon et al teach that

PPACK avoids the divalent cation-chelating effect of anticoagulants such as citrate and EDTA, which has been shown to contribute to the overestimation of platelet inhibition.

12. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brady et al in view of Solen et al (US Patent no. 6,043,871, submitted in the IDS filed on May 17, 2004). For a teaching of Brady et al, see previous paragraphs in this Office action. Brady et al fail to teach that the platelet aggregation measured using electrical impedance correlates to platelet aggregation measured using light transmission aggregometry.

Solen et al teach of a method for measuring platelet aggregation in blood samples using light transmission aggregometry. Solen et al teach that methods for measuring platelet aggregation using electrical impedance methods have been shown to correlate closely with platelet aggregation measured using light transmission turbidometric methods. See lines 38-46 in column 3 of Solen et al.

Therefore, based upon the combination of Brady et al and Solen et al, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to expect the platelet aggregation results obtained in the method taught by Brady et al using electrical impedance to correlate closely with the results of platelet aggregation obtained using light transmission aggregometry since Solen et al teach that both methods of platelet aggregation measurement correlate closely to one another.

13. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brady et al in view of Lakkis et al (article submitted in the IDS filed on March 15, 2004). For a teaching of Brady et al, see previous paragraphs in this Office action. Brady et al fail to teach that the

electrical impedance instrument used to measure platelet aggregation is a ICHOR hematology analyzer.

Lakkis et al teach of a method that measures platelet aggregation in blood samples with a ICHOR analyzer. Lakkis et al teach that the ICHOR analyzer is an electrical impedance-type analyzer that counts platelets as they pass through an aperture, which causes the interruption of a constant electrical current, resulting in an electrical pulse. See the second column on page 347 of Lakkis et al.

Based upon the combination of Brady et al and Lakkis et al, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to use a ICHOR analyzer as the electrical impedance hematology instrument in the method taught by Brady et al for measuring platelet aggregation since Lakkis et al teach that a ICHOR analyzer operates on the principle of electrical impedance.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Please make note of: Patzke and Toh et al who teach of methods for measuring platelet aggregation and coagulation reactions in blood.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen M. Wallenhorst whose telephone number is 571-272-1266. The examiner can normally be reached on Monday-Wednesday from 6:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden, can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Maureen M. Wallenhorst
Primary Examiner
Art Unit 1743

mmw

September 19, 2005

Maureen M. Wallenhorst
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